

CLAIM SUMMARY DOCUMENT

The following listing of claims will replace all prior versions and listings of claims in this application.

1. (Currently Amended) A breast pump, comprising:
 - a milk container main body capable of accommodating sucked mother's milk;
 - a deformable member configured to provide a sealed space by contacting a breast;
 - a horn member disposed outside the deformable member;
 - an internal space pressure altering device that is configured to alternately provide a negative pressure condition and an atmospheric pressure condition in the sealed space; and
 - a communicating portion configured to connect the internal space pressure altering device and the sealed space,
 - wherein the horn member is configured such that it does not deform when internal pressure within the sealed space varies and has a base end disposed near the communicating portion, an inner surface, and an opening end disposed near an entrance through which the breast is inserted;
 - the deformable member is configured to cover the inner surface of the horn member, to deform when internal pressure within the sealed space varies, and has an attachable and detachable portion which is attachable to and detachable from the horn member;
 - the attachable and detachable portion has a base end side attachable and detachable portion configured to be fixed to the base end of the horn member and an opening side attachable and detachable portion configured to be fixed to the opening end of the horn member;
 - the deformable member has a stimulating convex projecting inwardly;
 - the stimulating convex is disposed between the base end side attachable and detachable portion and the opening side attachable and detachable portion; and
 - the horn member has an atmospheric pressure condition creating structure configured to maintain an atmospheric pressure condition in a space between the stimulating convex

deformable member and the horn member, wherein the atmospheric pressure condition creating structure is at least one vent opening formed by only the horn member so as to directly open the space between the deformable member and the horn member to atmosphere, and a first side of the at least one vent opening in the horn member is exposed directly to the space between the horn member and the deformable member, and an opposite side of the at least one vent opening in the horn member is exposed directly to atmosphere exterior to the breast pump, and the atmospheric pressure condition creating structure is configured to maintain an atmospheric pressure condition in the space between the deformable member and the horn member continuously during operation of the internal space pressure altering device during both a time at which the negative pressure condition is present in the sealed space and a time at which the atmospheric pressure condition is present in the sealed space.

2. (Currently Amended) A breast pump as set forth in ~~claim 1~~ claim 4, wherein the stimulating convex of the deformable member is disposed in a vicinity of a curvature altering portion where a curvature of the base end of the horn member changes.

3. (Previously Presented) A breast pump as set forth in claim 1, wherein the base end side attachable and detachable portion of the deformable member is disposed between the communicating portion and the base end of the horn member.

4. (Currently Amended) A breast pump as set forth in claim 1, wherein the atmospheric pressure condition creating structure is a vent opening that connects a space between the horn member and the deformable member with atmosphere exterior to the breast pump the deformable member has a stimulating convex projecting inwardly, and the stimulating convex is disposed between the base end side attachable and detachable portion and the opening side attachable and detachable portion.

5. (Currently Amended) A breast pump as set forth in ~~claim 1~~, comprising:

a milk container main body capable of accommodating sucked mother's milk;
a deformable member configured to provide a sealed space by contacting a breast;
a horn member disposed outside the deformable member;
an internal space pressure altering device that is configured to alternately provide a negative pressure condition and an atmospheric pressure condition in the sealed space; and
a communicating portion configured to connect the internal space pressure altering device and the sealed space,

wherein the horn member is configured such that it does not deform when internal pressure within the sealed space varies and has a base end disposed near the communicating portion, an inner surface, and an opening end disposed near an entrance through which the breast is inserted;

the deformable member is configured to cover the inner surface of the horn member, to deform when internal pressure within the sealed space varies, and has an attachable and detachable portion which is attachable to and detachable from the horn member;

the attachable and detachable portion has a base end side attachable and detachable portion configured to be fixed to the base end of the horn member and an opening side attachable and detachable portion configured to be fixed to the opening end of the horn member;

the horn member has an atmospheric pressure condition creating structure configured to maintain an atmospheric pressure condition in a space between the deformable member and the horn member; and

wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member, the deformation guide portion having a thinner wall than a wall of the deformable member, and the atmospheric pressure condition creating structure is configured to maintain an atmospheric pressure condition in the space between the deformable member and the horn member continuously during operation of the internal space pressure altering device during both a time at which the negative pressure condition is present in the sealed space and a time at which the atmospheric pressure condition is present in the sealed space.

6. (Currently Amended) A breast pump as set forth in claim 5, wherein the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

7. (Previously Presented) A breast pump as set forth in claim 2, wherein the base end side attachable and detachable portion of the deformable member is disposed between the communicating portion and the base end of the horn member.

8. (deleted)

9. (Currently Amended) A breast pump as set forth in claim 3, wherein the atmospheric pressure condition creating structure is a vent opening that connects a space between the horn member and the deformable member with atmosphere exterior to the breast pump. The deformable member has a stimulating convex projecting inwardly, and the stimulating convex is disposed between the base end side attachable and detachable portion and the opening side attachable and detachable portion.

10. (Currently Amended) A breast pump as set forth in claim 7, wherein the atmospheric pressure condition creating structure is a vent opening that connects a space between the horn member and the deformable member with atmosphere exterior to the breast pump. The deformable member has a stimulating convex projecting inwardly, and the stimulating convex is disposed between the base end side attachable and detachable portion and the opening side attachable and detachable portion.

11. (Previously Presented) A breast pump as set forth in claim 2, wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member.

12. (Previously Presented) A breast pump as set forth in claim 3, wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member.

13. (Previously Presented) A breast pump as set forth in claim 4, wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member.

14. (Previously Presented) A breast pump as set forth in claim 7, wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member.

15. (deleted)

16. (Previously Presented) A breast pump as set forth in claim 9, wherein a deformation guide portion that is configured to regulate a deformation direction of the deformable member is provided on the deformable member.

17. (deleted)

18. (Previously Presented) A breast pump as set forth in claim 11, wherein the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

19. (Currently Amended) A breast pump as set forth in claim 12, wherein

the deformable member has a stimulating convex projecting inwardly,

the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

20. (Previously Presented) A breast pump as set forth in claim 13, wherein

the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

21. (Previously Presented) A breast pump as set forth in claim 14, wherein

the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

22. (deleted)

23. (Previously Presented) A breast pump as set forth in claim 16, wherein

the stimulating convex is provided at a plurality of positions within the deformable member, and at least some of these stimulating convexes are opposed to each other on a first virtual line; and

the deformation guide portion is disposed on a second virtual line which crosses the first virtual line connecting the stimulating convexes provided in opposition to each other.

24. (deleted)